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AMENDED APPEAL BRIEF

Applicant	:	Jorneus et al.
App. No	:	10/574,313
Filed	:	December 13, 2006
For	:	IMPLANT ARRANGEMENT WITH AN INTERNAL SOCKET FOR A TURNING TOOL
Examiner	:	Yogesh Patel
Art Unit	:	3732
Conf No.	:	7121

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Rabinder N. Narula, Reg. No. 53,371

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In accordance with the Examiner's Notice dated August 6, 2009, Applicants submit this Amended Appeal Brief.

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I. REAL PARTY IN INTEREST

The real party in interest in the present application is Nobel Biocare Services AG. the assignee of the present application.

II. RELATED APPEALS AND INTERFERENCES

No related appeals, interferences, or court proceedings are currently pending.

III. STATUS OF CLAIMS

Claims 1, 3-7, 10 and 12-20 are currently pending in the application and are the subject of this appeal. Claims 2, 8-9, and 11 were previously cancelled. All of the pending claims were rejected in the final Office Action having a notification date of September 26, 2008. The pending claims are listed in the Claims Appendix.

Claims 1, 3-7, 10 and 12-16 stand rejected under 35 U.S.C. § 112, ¶ 2 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claims 1, 3-7, 10 and 12-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Application No. 2002/0177105 issued to Engman in view of U.S. Patent No. 4,681,541 issued to Snaper.

Applicants note that Claims 18-20 have been objected to. Although amendments are not allowed at this time, Applicants note that the error is inadvertent and obvious, where Claims 18 and 20 should depend from Claim 17, and Claim 19 should depend from Claim 18.

IV. STATUS OF AMENDMENTS

No amendments are made in response to the final Office Action.

V. SUMMARY OF CLAIMED SUBJECT MATTER

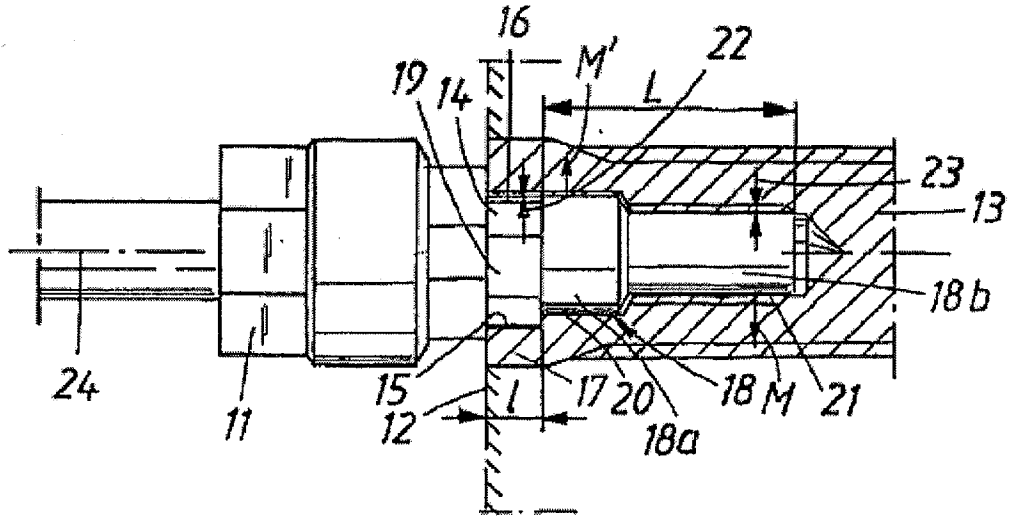
The present application includes two independent claims. Each independent claim is summarized below, with citations to corresponding portions of the specification and drawings of the application as filed as required by 37 C.F.R. § 41.37(c)(1)(v). These citations are set forth to illustrate specific examples and embodiments of the recited claim language and not to limit the claims.

Claim 1

Claim 1 is directed to a dental implant assembly for counteracting the stress in a portion of the dental implant assembly. The assembly includes at least the following:

- a dental implant (13) comprising an upper portion with an internal socket formed on a top surface of the upper portion (17), the internal socket comprising a first portion and a second portion spaced along a longitudinal axis of the dental implant, the first portion disposed adjacent the top surface of the dental implant and defining first lateral surfaces (15), the second portion spaced further from the top surface and defining a lateral guide surface (20) (*see, e.g.,* ABSTRACT; p. 2, ll. 25-39; p. 6, l. 4 – p. 7, l. 16; and FIG. 3 (reproduced below), ref nos. 13, 15, 17 and 20); and

Fig. 3

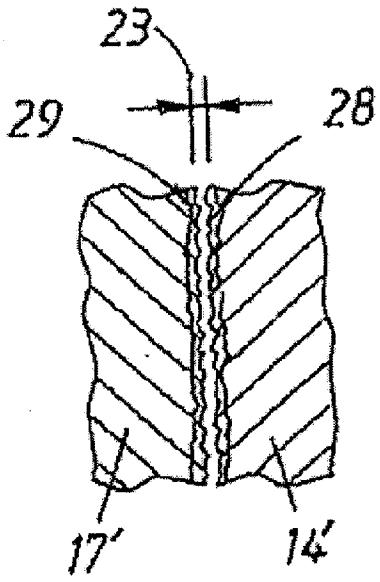


- a turning instrument (11) configured to engage the internal socket and to turn the dental implant, the turning instrument comprising a drive part (19) and a guide pin part (18), the drive part comprising second lateral surfaces (14) that cooperate with the first lateral surfaces (15) in the internal socket, the guide pin part extending longitudinally beyond the drive part of the turning instrument such that the guide pin part is configured to be received within the second portion of the socket (20) of the dental implant with the guide pin part corresponding to the lateral guide surface of the socket (*see, e.g.,* ABSTRACT; p.

2, ll. 25-39; p. 3, l. 26 – p. 4, l. 5; p. 6, l. 4 – p. 7, l. 16; and FIG. 3 (reproduced above), ref nos. 11, 14, 15, 18, 19 and 20);

- wherein at least one of the first (14') and second (17') lateral surfaces comprises a friction-enhancing coating (28), (29) comprising at least one of titanium nitride and chromium carbide for enhancing friction between the turning instrument and the internal socket (*see, e.g.,* ABSTRACT; p. 2, ll. 25-39; p. 3, ll. 1-24; p. 8, ll. 5-32; and FIG. 6 (reproduced below), ref nos. 14', 17', 28 and 29).

Fig. 6



Claim 17

Claim 17 is directed to a dental implant assembly for counteracting the stress in a portion of the dental implant assembly. The assembly includes at least the following:

- a dental implant (13) comprising a flange and an internal socket, the flange being disposed at an upper part of the dental implant, the internal socket having first (17), second (20), and third (21) portions being spaced along a longitudinal axis of the dental implant, the first portion of the socket being disposed at the upper part of the dental

implant and defining a first mating section, the second and third portions of the socket defining interacting surfaces (*see, e.g.,* ABSTRACT; p. 2, ll. 25-39; p. 6, l. 4 – p. 7, l. 16; and FIG. 3 (reproduced above), ref nos. 13, 17, 20 and 21); and

- a turning instrument (11) being configured to engage the internal socket and to turn the dental implant, the turning instrument comprising a drive part (19) and a guide pin part (18), the drive part having a second mating section that can cooperate with the first mating section (17) of the internal socket for transmitting torque from the turning instrument to the dental implant, the guide pin part comprising first (18a) and second (18b) longitudinally extending parts, the first and second longitudinally extending parts being configured with the first longitudinally extending part being interposed between the drive part and the second longitudinally extending part such that the first longitudinally extending part corresponds to the interacting surface of the second portion of the socket (20) and the second longitudinally extending part corresponds to the interacting surface of the third portion of the socket (21), the guide pin part being configured to take up bending moments between the dental implant and the turning instrument for reducing stresses placed on the flange and internal socket of the dental implant (*see, e.g.,* ABSTRACT; p. 2, ll. 25-39; p. 3, l. 26 – p. 4, l. 5; p. 6, l. 4 – p. 7, l. 16; and FIG. 3 (reproduced above), ref nos. 11, 17, 18, 18a, 18b, 19, 20 and 21);
- wherein at least one of the first (14') and second (17') mating sections comprises a friction-enhancing coating (28), (29) comprising titanium nitride for enhancing friction between the turning instrument and the internal socket, the friction-enhancing coating facilitating the reduction of stress in the implant portion upon exertion of torque by the turning instrument against the internal socket (*see, e.g.,* ABSTRACT; p. 2, ll. 25-39; p. 3, ll. 1-24; p. 8, ll. 5-32; and FIG. 6 (reproduced above), ref nos. 14', 17', 28 and 29).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

As the grounds of rejection for review:

1. Whether Claims 1, 3-7, 10 and 12-16, under 35 U.S.C. § 112, ¶ 2, are indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention?

2. Whether Claims 1, 3-7, 10 and 12-20 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent Application No. 2002/0177105 issued to Engman in view of U.S. Patent No. 4,681,541 issued to Snaper?

VII. ARGUMENT

A. The Rejections of Claims 1, 3-7, 10 and 12-16 Under 35 U.S.C. § 112, ¶ 2 for Indefiniteness Are Incorrect

The final Office Action states that the phrase "the drive part comprising second lateral surfaces" is unclear. Final Office Action 2. Claim 1 is as follows (emphasis added):

> 1. A dental implant comprising an upper portion with an internal socket formed on a top surface of the upper portion, the internal socket comprising a first portion and a second portion spaced along a longitudinal axis of the dental implant, the first portion disposed adjacent the top surface of the dental implant and defining first lateral surfaces, the second portion spaced further from the top surface and defining a lateral guide surface; and
>
> a turning instrument configured to engage the internal socket and to turn the dental implant, the turning instrument comprising a drive part and a guide pin part, the drive part comprising second lateral surfaces that cooperate with the first lateral surfaces in the internal socket, the guide pin part extending longitudinally beyond the drive part of the turning instrument such that the guide pin part is configured to be received within the second portion of the socket of the dental implant with the guide pin part corresponding to the lateral guide surface of the socket;
>
> wherein at least one of the first and second lateral surfaces comprises a friction-enhancing coating comprising at least one of titanium nitride and chromium carbide for enhancing friction between the turning instrument and the internal socket.

Applicants respectfully point out that the "second lateral surfaces" of the drive part are the lateral surfaces that interact with the first lateral surfaces of the implant as recited in the pending claim. That is, "first" and "second" are used to distinguish two sets of "lateral surfaces"

one on the dental implant and one on the turning instrument. Applicants believe that this is also clearly understood in light of the description in the specification and the figures. *See* p. 6, ll. 6-8; FIG. 3 (reproduced below), ref nos. 14 and 15; and FIGS. 6 and 7 (reproduced below), ref nos. 14' and 17'.

Fig. 3

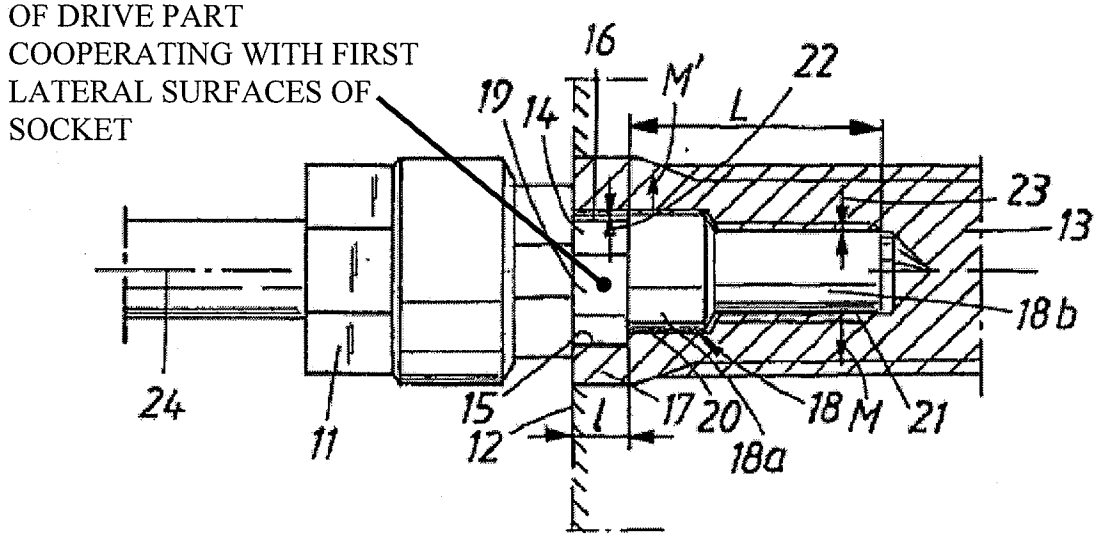


Fig. 6

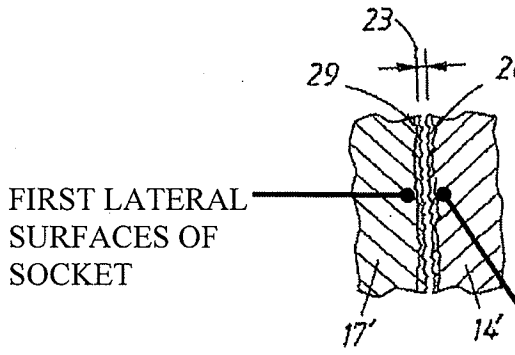
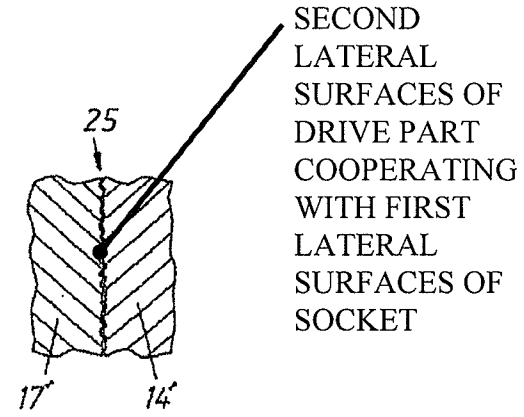


Fig. 7



SECOND LATERAL SURFACES OF DRIVE PART

In determining compliance with the requirement for definiteness under 35 U.S.C. § 112, ¶ 2, the focus "is whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available." MPEP § 2173.02. The claim language must be analyzed in light of: "(A) The content of the particular application disclosure; (B) The teachings of the prior art; and (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made." *Id.*

In light of the specification and the figures of the present application, Applicants respectfully submit the meaning of "the drive part comprising second lateral surfaces" is clear and precise. Moreover, Applicants assert that the claim language is clear and precise to one of ordinary skill in the art. In sum, the claim language easily satisfies the threshold requirements of 35 U.S.C. § 112, ¶ 2.

Accordingly, Applicants respectfully request that this rejection of Claims 1, 3-7, 10 and 12-16 be withdrawn.

B. The Obviousness Rejections of Claims 1, 3-7, 10 and 12-20 over Engman in view of Snaper Are Incorrect

The first Office Action cited Engman as the basis for rejection of the claims under 35 U.S.C. § 102(e). In our response to the first Office Action, among other things, we asserted that Engman did not disclose the element of a friction enhancing coating. In the final Office Action, Engman is combined with Snaper under 35 U.S.C. 103(a), attempting to fulfill the missing element of a friction enhancing coating.

However, Snaper discloses the use of titanium nitride on a dental bur, which is essentially a drill bit used to drill holes in teeth. The final Office Action remarks that "titanium nitride is well-known for its hardness, corrosion-resistan[ce] and biocompatib[ility]." Final Office Action 3. The final Office Action asserts that it would have been obvious to one of ordinary skill in the art that such a coating would allow the turning tool "to tolerate more torque." Final Office Action 3.

Applicants respectfully disagree and submit that final Office Action is ignoring the radically different functions of a dental burr and a turning instrument for a dental implant. Such differences would not lead one of skill in the art to make the suggested combination.

In *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007), the Supreme Court remarked that "it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." Moreover, prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *See* MPEP § 2141.02. Here, the final Office Action does not present a sufficient reason to combine the elements. On the contrary, the final Office Action merely puts two references together, without considering that the function of the titanium nitride coating in Snaper on a dental burr.

In Snaper, the use of titanium nitride as a coating is so that the dental bur that is operated at high speeds would not wear down as fast, which is pertinent when drilling holes in teeth. To this effect, Snaper discloses that "nitrides are harder and more wear-resistant than carbides." Snaper, col. 3, ll. 25-26. However, Snaper does not disclose anything regarding titanium nitride for the purpose of creating more friction or for the purpose of enhancing torque between a turning instrument and an implant.

Thus, Snaper discloses a coating for a dental burr. The claimed invention is directed to a dental implant and a turning tool for the dental implant with lateral surfaces having at least one of titanium nitride and chromium carbide coating. Yet the final Office Action maintains it would be obvious for one of skill in the art to pick a coating from a dental burr, which is configured to cut and abrade bone at high speeds, and apply such a coating to the lateral surfaces between a dental implant and turning tool. Applicants submit that it is unreasonable to conclude that such a combination is obvious to one of skill in the art. One of skill in the art would not recognize that a coating for a dental bone burr would improve or be suitable for a mechanical connection between a dental implant and a turning tool. The two applications are completely different and have completely different requirements.

For example, Snaper is interested in preserving the sharp edges of a bone burr as it cuts through bone at high speeds. It is unreasonable to expect one of skill in the art to apply such a coating, intended to preserve sharp cutting edges, to a turning tool configured to mechanically

engage an implant in a relationship in which one part does not cut into another part but instead is configured to engage and transmit torque. Such hardness may indeed be harmful to the connection between two mechanical parts.

The final Office Action states that the motivation for the combination is simply to provide the "well-known" properties of hardness, corrosion resistant and biocompatibility. However, as noted above, such a coating for a burr may not be suitable for mechanical parts that interact with each other.

In addition, both independent Claims 1 and 17 recite, in part, that the coating is a "friction-enhancing coating." Applicants respectfully note that neither of the cited references disclose, teach or suggest a coating that enhances friction. Snaper, in particular, discloses a titanium nitride layer but includes no disclosure of configuring such a layer to enhance friction. Instead, Snaper discloses that such a layer increases the hardness of the burr, which suggests that the layer does not enhance friction. Thus, the recited combination also does not establish a prima facie case of obviousness.

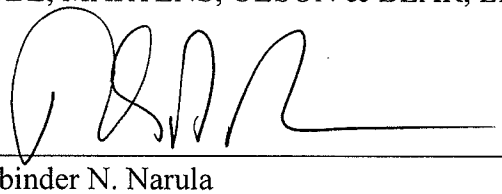
C. Conclusion

For at least the reasons explained above, Applicants respectfully submit that the rejections of Claims 1, 3-7, 10 and 12-20 are improper and should be reversed. Please charge any additional fees that may be required now or in the future to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 8-13-09

By: 

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VIII. CLAIMS APPENDIX

1. A dental implant assembly for counteracting stress in a portion of the dental implant assembly, the assembly comprising:

a dental implant comprising an upper portion with an internal socket formed on a top surface of the upper portion, the internal socket comprising a first portion and a second portion spaced along a longitudinal axis of the dental implant, the first portion disposed adjacent the top surface of the dental implant and defining first lateral surfaces, the second portion spaced further from the top surface and defining a lateral guide surface; and

a turning instrument configured to engage the internal socket and to turn the dental implant, the turning instrument comprising a drive part and a guide pin part, the drive part comprising second lateral surfaces that cooperate with the first lateral surfaces in the internal socket, the guide pin part extending longitudinally beyond the drive part of the turning instrument such that the guide pin part is configured to be received within the second portion of the socket of the dental implant with the guide pin part corresponding to the lateral guide surface of the socket;

wherein at least one of the first and second lateral surfaces comprises a friction-enhancing coating comprising at least one of titanium nitride and chromium carbide for enhancing friction between the turning instrument and the internal socket.

2. **(Canceled)**

3. The dental implant assembly as in claim 1, wherein a cross-section through the first and second lateral surfaces of the respective ones of the dental implant and the turning tool is non-round.

4. The dental implant assembly as in claim 1, wherein the friction-enhancing coating is disposed on the first lateral surfaces.

5. The dental implant assembly as in claim 1, wherein the friction-enhancing coating is disposed on the second lateral surfaces.

6. The dental implant assembly as in claim 1, wherein the the first and second lateral surfaces are formed to include a surface roughness for further enhancing friction between the turning instrument and the internal socket of the dental implant.

7. The dental implant assembly as in claim 1, wherein interaction between the first and second lateral surfaces is configured to take place only when a degree of loading or degree of turning of the dental implant and the turning instrument tool is reached.

8. **(Canceled)**

9. **(Canceled)**

10. The dental implant assembly as in claim 1, wherein the friction-enhancing coating further comprises diamond particles.

11. **(Canceled)**

12. The dental implant assembly as in claim 1, wherein guide pin part is about 3 to 5 times longitudinally longer than the longitudinal length of the first lateral surfaces of the first portion of the internal socket of the dental implant.

13. The dental implant assembly as in claim 1, wherein the guide pin part comprises first and second longitudinally extending parts and the second portion of the socket comprises medial and distal sections configured to receive the respective ones of the first and second parts of the guide pin part of the turning tool, the first part having a first diameter and the second part having a second diameter.

14. The dental implant assembly as in claim 13, wherein a bending moment between the dental implant and the turning instrument tool places a load on surface areas of the second portion of the dental implant, which bending moment is prevented from acting on the first portion of the internal socket by a slight clearance that is initially present between the first and second lateral surfaces.

15. The dental implant assembly as in claim 14, wherein threads parts of the implant which bear said threads take up said bending moments.

16. The dental implant assembly as in claim 13, wherein the first diameter is greater than the second diameter.

17. A dental implant assembly for counteracting stress in a portion of the dental implant assembly, the assembly comprising:

a dental implant comprising a flange and an internal socket, the flange being disposed at an upper part of the dental implant, the internal socket having first, second, and third portions being spaced along a longitudinal axis of the dental implant, the first

portion of the socket being disposed at the upper part of the dental implant and defining a first mating section, the second and third portions of the socket defining interacting surfaces; and

a turning instrument being configured to engage the internal socket and to turn the dental implant, the turning instrument comprising a drive part and a guide pin part, the drive part having a second mating section that can cooperate with the first mating section of the internal socket for transmitting torque from the turning instrument to the dental implant, the guide pin part comprising first and second longitudinally extending parts, the first and second longitudinally extending parts being configured with the first longitudinally extending part being interposed between the drive part and the second longitudinally extending part such that the first longitudinally extending part corresponds to the interacting surface of the second portion of the socket and the second longitudinally extending part corresponds to the interacting surface of the third portion of the socket, the guide pin part being configured to take up bending moments between the dental implant and the turning instrument for reducing stresses placed on the flange and internal socket of the dental implant;

wherein at least one of the first and second mating sections comprises a friction-enhancing coating comprising titanium nitride for enhancing friction between the turning instrument and the internal socket, the friction-enhancing coating facilitating the reduction of stress in the implant portion upon exertion of torque by the turning instrument against the internal socket.

18. The dental implant assembly as in claim 18, wherein the first mating section is configured such that when the turning instrument is completely inserted into the socket of the dental implant, a bending force is not transferred through the second mating section from the first mating section upon exertion of a bending force on the turning instrument.

19. The dental implant assembly as in claim 19, wherein a load is only transferred to the first mating section from the second mating section upon rotation of the turning instrument.

20. The dental implant assembly as in claim 18, wherein the friction-enhancing coating further comprises diamond particles.

IX. EVIDENCE APPENDIX

None

X. RELATED PROCEEDINGS APPENDIX

None

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